ELSEVIER

Journal of Hydrology 209 (1998) vii

Journal of Hydrology

# Contents

*Preface* . . . . . 1

Multicomponent transport with coupled geochemical and microbiological reactions: model description and example simulations
C. Tebes-Stevens, A.J. Valocchi, J.M. VanBriesen and B.E. Rittmann . . . . . 8

Development and application of a numerical model of kinetic and equilibrium microbiological and geochemical reactions (BIOKEMOD)
K.M. Salvage and G.-T. Yeh. . . . . 27

Kinetic modeling of microbially-driven redox chemistry of subsurface environments: coupling transport, microbial metabolism and geochemistry
K.S. Hunter, Y. Wang and P. Van Cappellen . . . . . 53

Reactive transport modeling of plug-flow reactor experiments: quartz and tuff dissolution at 240°C
J.W. Johnson, K.G. Knauss, W.E. Glassley, L.D. DeLoach and A.F.B. Tompson . . . . . 81

Importance of flow and particle-scale heterogeneity on $CO^{II/III}$EDTA reactive transport
J.E. Szecsody, J.M. Zachara, A. Chilakapati, P.M. Jardine and A.S. Ferrency . . . . . 112

Implications of replacement for reaction–transport modeling
E. Merino and T. Dewers . . . . . 137

Non-ideal transport of reactive solutes in heterogeneous porous media: 3. model testing and data analysis using calibration versus prediction
M.L. Brusseau . . . . . 147

Modelling the effect of chemical heterogeneity on acidification and solute leaching in overburden mine spoils
H.H. Gerke, J.W. Molson and E.O. Frind. . . . . 166

Multicomponent reactive transport in discrete fractures: I. Controls on reaction front geometry
C.I. Steefel and P.C. Lichtner . . . . . 186

Multicomponent reactive transport in discrete fractures: II. Infiltration of hyperalkaline groundwater at Maqarin, Jordan, a natural analogue site
C.I. Steefel and P.C. Lichtner . . . . . 200

Analysis and simulation of reactive transport of metal contaminants in ground water in Pinal Creek Basin, Arizona
J.G. Brown, R.L. Bassett and P.D. Glynn . . . . . 225

A reactive transport model of neptunium migration from the potential repository at Yucca Mountain
H.S. Viswanathan, B.A. Robinson, A.J. Valocchi and I.R. Triay . . . . . 251

Hydrogeochemical transport modeling of 24 years of Rhine water infiltration in the dunes of the Amsterdam Water Supply
B.M. van Breukelen, C.A.J. Appelo and T.N. Olsthoorn . . . . . 281

Modeling $CO_2$ degassing and pH in a stream–aquifer system
J. Choi, S.M. Hulseapple, M.H. Conklin and J.W. Harvey . . . . . 297

An advection–dispersion–reaction model of bauxite formation
J.M. Soler and A.C. Lasaga . . . . . 311

Determining rates of chemical weathering in soils—solute transport versus profile evolution
D.A. Stonestrom, A.F. White and K.C. Akstin . . . . . 331

The genesis of dedolomites: a discussion based on reactive transport modeling
C. Ayora, C. Taberner, M.W. Saaltink and J. Carrera . . . . . 346

Coupled reaction-flow modeling of diagenetic changes in reservoir permeability, porosity and mineral compositions
Y. Le Gallo, O. Bildstein and E. Brosse. . . . . 366